

CLAIMS

The invention claimed is:

1. A corneal inlay comprising a top and at least a bottom surface, wherein said bottom surface includes at least one protrusion extending downwardly, wherein said protrusion is adapted to engage a surface of a cornea.
2. The corneal inlay as claimed in claim 1 wherein said at least one protrusion includes a plurality of microscopic spike like protrusions.
3. The corneal inlay as claimed in claim 1 wherein said at least one protrusion is disposed offset from a center of said corneal inlay.
4. The cornea inlay as claimed in claim 1 wherein said at least one protrusion includes a generally cylindrical protrusion.
5. The corneal inlay as claimed in claim 1 wherein said at least one protrusion includes a generally arc shaped protrusion.
6. The corneal inlay as claimed in claim 1 wherein said at least one protrusion includes a generally ring shaped protrusion,

wherein said protrusion is disposed proximate a perimeter of said bottom surface of said corneal inlay.

7. The corneal inlay as claimed in claim 1 wherein said at least one protrusion includes a generally straight segment.

8. The corneal inlay as claimed in claim 1 wherein said at least one protrusion includes a single protrusion having substantially the same dimensions as said bottom surface of said corneal inlay.

9. The corneal inlay as claimed in claim 1 wherein said at least one protrusion is sized and shaped to fit within at least one aperture disposed in said cornea.

10. The corneal inlay as claimed in claim 9 wherein said at least one protrusion includes a non-circular outer perimeter corresponding to a non-circular outer perimeter of said at least one aperture.

11. The corneal inlay as claimed in claim 9 wherein said at least one protrusion and said at least one aperture are disposed offset from a center of said corneal inlay in said cornea respectively.

12. The cornea inlay as claimed in claim 9 wherein said at least one protrusion includes a generally cylindrical protrusion sized and shaped to fit within a generally cylindrical aperture.

13. The corneal inlay as claimed in claim 9 wherein said at least one protrusion includes a generally arc shaped protrusion sized and shaped to fit within a generally arc shaped aperture.

14. The corneal inlay as claimed in claim 9 wherein said at least one protrusion includes a generally ring shaped protrusion sized and shaped to fit within any generally ring shaped aperture, wherein said protrusion and said aperture are disposed proximate a perimeter of said bottom surface of said corneal inlay.

15. The corneal inlay as claimed in claim 9 wherein said at least one protrusion includes a generally straight segment sized and shaped to fit within a generally straight aperture.

16. The corneal inlay as claimed in claim 9 wherein said at least one protrusion includes at least two protrusions disposed about said bottom surface of said corneal inlay and sized and shaped to get within at least two apertures disposed in said cornea.

17. A corneal inlay comprising a top surface, a bottom surface, and a non-circular perimeter, wherein said non-circular perimeter of said corneal inlay is sized and shaped to fit within an aperture having a non-circular outer perimeter disposed in a cornea.

18. The corneal inlay as claimed in claim 17 wherein said non-circular perimeter of said corneal inlay includes a generally oval shape.

19. The corneal inlay as claimed in claim 17 wherein said corneal inlay includes at least one protrusion disposed about said bottom surface, wherein said at least one protrusion includes a non-circular perimeter.

20. A corneal inlay comprising a top surface, a bottom surface, and an adhesive layer disposed about at least a portion of said bottom surface of said corneal inlay, wherein said adhesive layer adheres said corneal inlay to a surface of a cornea.

21. The corneal inlay as claimed in claim 20 wherein said adhesive is disposed proximate an outer region of said bottom surface of said corneal inlay.

22. The corneal inlay as claimed in claim 20 wherein said corneal inlay further includes release backing disposed about a lower surface of said adhesive layer.

23. The corneal inlay as claimed in claim 20 wherein said corneal inlay further includes indicia disposed proximate an outer region of said corneal inlay, wherein said indicia is indicative of a proper orientation of said corneal inlay.

24. A method of preventing movement of a corneal inlay relative to a surface of a cornea upon which said corneal inlay is disposed, said method comprising the acts of:

placing a corneal inlay having at least one protrusion disposed about and extending downwardly from a bottom surface of said corneal inlay on said surface of said cornea; and

engaging said surface of said cornea with said least one protrusion.

25. The method as claimed in claim 24 wherein said at least one protrusion of said corneal inlay includes a plurality of microscopic spike like protrusions.

26. The method as claimed in claim 24 further including the act of cutting or ablating said surface of said cornea to form a corneal flap, wherein said corneal inlay is disposed beneath said corneal flap on said surface of said cornea.

27. The method as claimed in claim 24 further including the act of ablating said surface of said cornea to form at least one aperture, wherein said aperture is sized and shaped to accept said at least one protrusion such that said aperture in said protrusion form a lock and key type arrangement.

28. The method as claimed in claim 27 wherein said at least one protrusion is disposed about an outer region of said bottom surface of said corneal inlay, wherein said act of ablating said surface of said cornea to form said at least one aperture includes forming said aperture about an outer region of said cornea where said corneal flap is to be disposed.

29. A method of preventing movement of a corneal inlay relative to a surface of a cornea upon which said corneal inlay is disposed, said method comprising the acts of:

ablating said surface of said cornea to form at least one aperture having a non-circular outer perimeter corresponding to a non-circular perimeter of a corneal inlay; and

placing at least a portion of said non-circular perimeter of said corneal inlay within said non-circular aperture, wherein said non-circular corneal inlay and said non-circular aperture form a lock and key type arrangement.

30. The method as claimed in claim 29 wherein an outer perimeter of said corneal inlay forms said non-circular perimeter of said corneal inlay.

31. The method as claimed in claim 29 wherein said act of ablating said surface of said cornea to form said at least one aperture includes forming at least one non-circular aperture size and shaped to accept at least one non-circular protrusion disposed about a bottom surface of said corneal inlay.

32. The method as claimed in claim 31 wherein said act of ablating said at least one non-circular aperture includes forming

an aperture having a generally arc shape corresponding to a generally arc shape protrusion of said corneal inlay.

33. The method as claimed in claim 31 wherein said act of ablating said at least one non-circular aperture includes forming an aperture having a generally rectangular shape corresponding to a generally rectangular shape protrusion of said corneal inlay.

34. The method as claimed in claim 31 further including the act of identifying a proper orientation of said corneal inlay by using said at least one protrusion.

35. The method as claimed in claim 29 further including the act identifying a proper orientation of said corneal inlay by viewing indicia disposed on at least a portion of said corneal inlay.

36. The method as claimed in claim 29 further including the act of securing said corneal inlay to said cornea using an adhesive.

37. A method of orienting a corneal inlay relative to a surface of a cornea comprising the acts of:

forming a corneal inlay having at least one protrusion extending downwardly from a bottom surface of said corneal inlay; ablating said surface of said cornea to form at least one aperture size and shaped to accept said protrusion; and inserting said protrusion within said aperture.

38. The method as claimed in claim 37 wherein said at least one protrusion is disposed about an outer region of said corneal inlay.

39. A method of performing wavefront-based measurements comprising the acts of:

securing at least one removable segment to a surface of a cornea or scleral conjunctiva;

aligning an aberrometer with a patient's cornea using said at least one removable segment; and

generating wavefront error data.

40. The method as claimed in claim 39 wherein said act of securing said at least one removable segment to said surface of said cornea or scleral conjunctiva includes securing said at least one movable segment using an adhesive.

41. The method as claimed in claim 39 further including the act of removing a release backing from a lower surface of an adhesive layer disposed on a bottom surface of said removable segment thereby exposing said adhesive layer.

42. The method as claimed in claim 39 wherein said removable segment includes a color which is in contrast to a color of said cornea or sclera.

43. The method as claimed in claim 39 wherein said movable segment is formed from plastic.

44. The method as claimed in claim 39 wherein said removable segment is formed from paper.

45. The method as claimed in claim 39 wherein said movable segment is secured to the cornea or scleral conjunctiva.